Space Weather Forecast

Issued on Friday, 06 September 2024 at 13:24 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Further Moderate flares likely, very slight chance of Strong flares. Chance of G1/Minor Geomagnetic Storm conditions on Day 2 and 3 (07 and 08 Sep). Increasing chance of S1/Minor Radiation Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity has been Moderate. There are currently nine sunspot regions on the visible disc. A moderately sized region reached the southwest limb, but remained active with numerous Common-class flares and an isolated Moderate-flare observed. A broad region of sunspots in the southeast underwent slow development, with moderate magnetic complexity observed. Further moderately complex spots occupy the south-centre and southwest disc, but evolved only slowly with none of the nine regions showing significant growth or decay during the period.

No Earth-directed Coronal Mass Ejections (CMEs) were observed in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind varied between slow and slightly elevated speeds, generally between 350-400km/s. The Interplanetary Magnetic Field was predominantly Weak, but increased to Moderate levels from 06/1103 UTC. The important north-south component was weak and mostly northward directed. Geomagnetic activity was Quiet (Kp1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is steadily easing following the rise in response to a flare on 01 Sep. It remains well below the S1/Minor Radiation Storm level though.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate activity is likely with a chance of isolated Strong flares. The risk decreases slightly by Day 3 (08 Sep) as the region currently on the west limb rotates well away, onto the far side.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs feature in the current forecast. A fast wind from a coronal hole in the northern hemisphere may bring slightly elevated wind speeds on Day 2 and 3 (07 and 08 Sep). Otherwise background wind speeds are expected.

Geomagnetic activity is forecast to be largely Quiet, but expected to reach Unsettled to Active levels with a chance of peak G1/Minor Storm (Kp 5) conditions on Day 2 (07 Sep). Activity should subside to largely Quiet to Unsettled levels again by Day 3 (08 Sep), but with a chance of isolated Active intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is currently above background levels, but well below the S1/Minor Radiation Storm threshold. There is a slight chance of exceeding S1 levels in the coming days, increasing to a chance on Day 4 (09 Sep).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	20	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	60	60
Very Active	R3 to R5 X	No	10	10	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	15	15	20
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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